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Tuberculous Udders.

Under The Dairies, Cowsheds, and Milk-shops Order of 1899, local authorities have power to prevent the use of milk from a tuberculous udder for human food, or for the food of animals unless and until it has been boiled. There are many cows with tuberculous udders, as is shown by the examinations of milk made in Cambridge, London, Manchester, and other towns. It ought not to be impossible to prevent the danger to the public from tuberculous milk, but as a fact very little is done by local authorities in whose hands the carrying out of the Order rests. The law says "It shall not be lawful for any person to carry on the trade of cowkeeper, dairyman, or purveyor of milk unless he is registered." It also provides that every local authority shall keep a Register of purveyors of milk in the district. A difficulty is that most of the milk sold in populous places comes from distant districts and, with the exception of a few large towns having private Acts of Parliament, it is almost impossible to have even a remote supervision of the cows supplying the milk sold. The principles of Local Government are strained by permitting officials from one district to go into other districts in search of offenders who are not looked after by their own authorities. What is required is some legislation which provides uniform and general regulations for each district, under a Central Authority able to enquire into any complaints and to enforce the proper performance of duties in any district. It would then be easy if tuberculous milk were discovered in London to trace it to its origin and to make the local aunthority—say in Kent or Wiltshire—find the offending cow and have it removed from the shed.

Of course this would necessitate the appointment of proper officers as Inspectors, and no person could act efficiently except a veterinary surgeon. The Dairies, Cowsheds, and Milkshops Order provides that "a local authority *may* make Regulations for—(*a*) Inspection of cattle in dairies; (*b*) regulating, lighting, ventilation, and drainage; (*c*) securing cleanliness in milk stores and of milk vessels; (*d*) prescribing precautions to be taken against infection or contamination.

Many local authorities have not issued such regulations or appointed the necessary officials. Perhaps out of the 400 existing local authorities not ten in Great Britain have appointed an inspector capable of recognising tuberculous udders or even of detecting the slighter forms of udder disease which are prevalent. Laws of this kind are a farce—they pretend to afford protection whilst really blinding the public to a danger. The Sanitary Inspector who occasionally looks in on a cowkeeper knows nothing of animal diseases and if inclined to be officious generally confines his attention to cubic-space, or some other condition that he can measure with a tape. For his own special work the Sanitary Inspector is a good official, but for detecting special diseases in animals he is useless. His superior—the Medical Officer of Health—is equally inefficient in diagnosing disease in animals.

Tuberculous milk is a far greater danger to man than tuberculous meat. The danger can only be removed by every local authority appointing a qualified veterinary surgeon as inspector. The cost of such an appointment need not be great. Every authority has under its care meat, milk, diseases of animals, and nearly always some animals of its own, horses or cattle. By combining the duties of inspection with other necessary veterinary work there are very few districts which could not well afford to pay a M.R.C.V.S. to confine himself to the work of the authority.

This would be the best way to utilise veterinary services, but until it is adopted a practitioner in the district might be appointed to be called in whenever the sanitary officer or medical officer required his assistance.

Tuberculous udders exist and are not discovered. Royal Commissions have reported on their danger and laws have been specially altered to provide protection against them. The danger is recognised, but no real attempt to meet it is made. Persons who understand animals and have had years of experience with the laws which have been successfully applied to the control or suppression of disease know well that whilst compulsory enactments are necessary so are some inducements—notably compensation. Unfortunately on recent committees and commissions medical men have had more weight than practical veterinarians, and they have, from ignorance and theory, gone out of their way to oppose compensation. They have found support in members of the veterinary profession, but only from two or three members who have no practical experience of the work of controlling disease.

If a cowkeeper now buys a cow for £20 apparently healthy and finds in a month that tuberculosis of the udder has appeared, he must remove that cow from his shed. If he sells it for slaughter he may obtain perhaps £14 for the animal. Of course this should be the end of the diseased cow, but the law does not enforce it, and the cowkeeper may prefer to send the cow to a distant market where it is likely to fetch him the full price. Is it policy to leave such an option to every owner of cows? Would it not be safer and fairer to require the public to share a loss—not caused by negligence or wilfulness—which is made solely for the public good? A payment of half the loss, perhaps £3 per cow would be a safeguard to the public and an indirect means of controlling disease among animals.

A CANINE ABDOMINAL CRYPTORCHID.

By Prof. Hobday, F.R.C.V.S., Royal Veterinary College, London.

It is not uncommon to meet with dogs and cats having only one descended testicle, but cases in which both are retained in the abdomen are not so frequent. The following case possesses additional interest because it was operated upon and made a good recovery.

On the 25th of July last an Irish terrier mongrel, 16 months old, was brought to the Free Outpatients' Clinique with a request that castration might be performed in order to cure its wandering propensities. No testicles could be felt in the usual situation, even when the animal was fixed upon its back on the operating table and placed under the influence of chloroform. The scrotum was incised with the usual antiseptic precautions, and an unsuccessful attempt made to reach the missing organs through the inguinal canals. The wound was sutured and covered with iodoform collodion, healing up without further trouble.

On the 8th of August the animal was again anæsthetised and laparotomy performed on the median line about half an inch in front of the opening of the prepuce. The middle finger was introduced into the pelvic region, where the missing testicles were readily found lying close to the internal abdominal ring. Each was withdrawn in turn and removed after ligaturing the spermatic artery with boiled silk. The abdominal wound was closed in the usual way with silkworm gut and silk, iodoform collodion being applied externally. Recovery was uninterrupted, only a small scratch-like wound being visible by the 18th. The testicles were about two-thirds the normal size.

The animal has been re-inspected from time to time, and the subsequent history presents nothing worthy of notice beyond the fact that the owner is well satisfied with the effect produced upon his former propensities to wander.

Luxation of the Humero-Radial Articulation in the Dog.—By M. Carongean.

This dislocation can be caused by any injury, but is usually due to excessive flexion of the forearm, with outward displacement of the upper extremity of the radius, causing sprain or laceration (partial or complete) of the internal lateral ligament. If the flexion is accompanied by an outward burst of the articulation luxation is exceedingly likely to take place, and experimentally on the cadaver it can be produced with very little exertion.

The author has studied the lesions of the part by means of Rontgen rays, and finds that there is no over-riding of the ends of the bones, simply lateral displacement. The capsular and lateral ligaments are lacerated and the tissues infiltrated are ecchymosed.

The symptoms are swelling of the part, a depression on the internal and a prominence on the external surface of the joint. The animal goes on three legs, the injured one swinging and slightly drawn up.

The injury is early reduced by extension and counter extension, and a lateral sliding of the articular surfaces, but as the dislocation easily recurs it is advisable to strap the part or apply an adhesive bandage. The matter was reported by Lafosse, in 1842.—*Journal de Médecine Vétérinaire et de Zoot.* June, 1899.

Directions for Using Anti-Venin Serum in Snake Bite.

Anti-venin serum is prepared from the blood of the horse rendered immune to snake bite. It preserves its properties for an indefinite time if the flask containing it is unopened, and it is preserved from the light. It is not affected by a temperature below 60°C. (141·4 F.)

It is employed hypodermically in cases of bites by all species of snakes and scarpion stings.

In cases of bites by European vipers and the smaller species of tropical snakes the dose is 10 cc. or one flacon of the serum as sent out. In the case of the larger and more venomous snakes, such as the Cobra di capella of India, the Naja haje of Egypt, the Bothrope of Martinque and South America and the Crotalus of North and South America, 20 cc. is required.

The injection should be made as soon as possible, especially in the case of bites by the deadly snakes of tropical countries, but death is delayed even if four hours have elapsed. There is no danger in injecting large quantities of the serum.

The syringe should be capable of being sterilized, and previously boiled for five minutes, a little borax being added to the water. The skin should be washed with soap and water and some antiseptic solution. The needle should be pushed deeply into the tissue and the injection made slowly "about two minutes," when the needle should be quickly withdrawn.

These precautions should be taken to prevent the formation of an abscess, but if the case is urgent they may be dispensed with. The anti-venin serum prepared by the Pasteur Institute at Lille, does not contain carbolic acid, and its antitoxin properties are proved by injecting 2 cc. into a rabbit weighing two kilogrammes, which five minutes afterwards receives a dose calculated to kill in 20 minutes a control animal of the same weight.

A slight albuminous precipitate in the flask is not to be taken as deterioration, but if the serum is turbid and milky it should not be used, as an abscess is likely to form.

A tourniquet formed by a string or handkerchief should at once be applied tightly *above* the wound, but as close to it as possible, and the bite squeezed and made bleed. It should be washed with a freshly made solution of chloride of lime in distilled water 1 to 60, or chloride of gold 1 to 100, and an ordinary antiseptic dressing applied.

It is useless to cauterize the part or to administer alcohol or ammonia.

In animals the injection can be made on the

withers between the shoulder, or if in a dangerous condition intravenously in the jugular in the large animals and saphena in the dog.—*Recueil de Médecine Vétérinaire*, Nov. 15th.

JOSHUA A. NUNN, Vet.-Major, A.V.D.

ROYAL VETERINARY COLLEGE V.M.A.

The 280th ordinary general meeting was held on Friday, November 17th, at 6.30 p.m. Mr. H. E. Whitemore in the chair. There were present Mr. C. E. Rix, M.R.C.V.S., 42 members, and one visitor. The minutes of the last meeting were read and confirmed.

Mr. J. CHALMERS exhibited, by the courtesy of Mr. P. Vincent, M.R.C.V.S., Grays, Essex, the cæcum and colon of a yearling colt suffering from strongylus tetracanthus, and by the courtesy of Mr. W. Anderson, M.R.C.V.S., Uxbridge, large exostoses of the pastern and pedal bones.

Mr. S. E. SAMPSON by the kindness of Mr. J. R. Carless, M.R.C.V.S., Shrewsbury, showed an abnormal bone corresponding to the humerus, radius, and ulna from a foal; a urethral calculus from a donkey; a foreign body from a cow's mouth; and the metatarsal of a heifer with a callus.

The students having expressed a desire to help towards the National War Fund, gentlemen were selected to collect each from his own professors and class, Mr G. H. Wooldridge being appointed hon. treasurer.

Mr. R. J. COLLINGS read a very able and practical essay on "Laminitis." The discussion was opened by Mr. S. E. Sampson, and carried on by Messrs. Thackeray, Chalmers, Sargent, Aldred, Tyler, Webb, and Sutton.

Votes of thanks to Essayist and Chairman terminated the proceedings.

JOHN HOBDAY, *Assist. Sec.*

EXTRACTS AND NOTES.

THE LOCAL DISTRIBUTION OF TUBERCLE IN VARIOUS SPECIES,

WITH REFERENCE TO THE CHANNEL OF INFECTION.

By WOODS HUTCHINSON, A.M., M.D.,
Professor of Comparative Pathology, University of Buffalo, U.S.A.

The purpose of this brief paper is to present an outline of our present knowledge as to the local localisation of the lesions of tuberculosis, based partly upon veterinary records, but chiefly upon the experience of the writer in the post-mortem room of the London Zoological Gardens during the past nine months. As this only covers some 80 cases of tuberculosis in animals and birds, the outline is most incomplete, and the report merely a preliminary one to see what light can be thrown upon the question of the commonest channel of infection or port of entry of the bacillus.

Although the disease spares no family or order of mammals in confinement—and my brief series includes cases of kangaroos, antelopes, an armadillo, a jackal, a llama, rodents, lemurs, monkeys, and apes—yet it cannot be said that its localisation in any form presents any very striking differences from that in our own species. In all the lung is the point of severest attack, and its lesions the usual cause of death. Tubercle in all mammals kills by the lungs. As to whether this organ is the earliest to be affected, my post-mortem findings are not adequate to prove, as most animals which die of tuberculosis are simply crammed with it, and it is impossible to say with any safety which are the oldest lesions.

In the small number of cases in which a few tuberculous foci were found in animals dead by other causes, these were almost invariably in the abdomen, usually either the mesenteric lymph nodes, the spleen, or the liver In fact, the most striking thing about the lesions of tubercle in animals is their much more general distribution throughout the organs. Though in nearly all my 40 cases in mammals the lung was most severely affected, yet in only 6 was it confined to this organ alone, foci being found in the spleen, liver, mesenteric nodes, and even kidney as well. In 7 it was confined entirely to the abdomen.

Veterinary writers are generally agreed that in the domestic animals—that is, in cattle, pigs, and rarely in horses and dogs—the lung suffers most frequently and most severely, and that here is probably the earliest site of serious invasion, but that in most cases foci are to be found in the abdominal organs also. The curious exception to this rule of more widely-spread distribution in animals is the almost complete immunity of the bones and joints. I have only seen osseous tuberculosis four times in animals, once in the knee of a kangaroo, twice in the ribs of monkeys, where a tuberculous lung was adherent to them. and once in the jaw of a monkey. It does occur, but not with anything like the human frequency, and is regarded in veterinary literature as rather a rare form of the disease. Affections of the genito-urinary apparatus would also appear to be much less common in animals, although more frequent in the domesticated than in wild mammals.

A marked characteristic of the disease in the bovidæ, whether cattle, antelopes, sheep, or gazelles, is its preference for the serous membranes, especially the pericardium and pleura. Here it forms the well-known grape-like, or shot-like masses of dense fibrous tissue, sometimes containing thick pus in their interior, which stud the whole surface of the membrane, and have given its popular English and German names to the disease, "the grapes" and *perlsucht*. Both this special preference and form of lesion appear to be confined to this family, although the pericardium is certainly much more frequently affected in the other groups than in our own species. In two cases in monkeys I have found small nodules upon the surface of the heart itself, just under the pericardium.

Many of the lesions in other situations in bovines appear to have this tendency to surround themselves with a dense fibrous envelope. Suppurating foci in the liver and lung will be found enclosed by a wall of fibrous tissue nearly a quarter of an inch think. In a sable antelope the whole external layer of the pericardium was changed into a firm dense wall of new growth three-quarters of an inch thick, which retained its shape after the heart had been removed from its cavity, as if it had been a plaster cast. Tuberculous peritonitis, on the contrary, appears to be no more common in animals than in man, as I have found only three cases, all in monkeys. Tuberculous ulceration of the intestine is not uncommon, especially in the cæcum and colon of monkeys.

It may be broadly stated that purulent degeneration of tuberculous masses is much more rare in animals than in man. With the exception of the thick-walled abscesses in bovines, most foci in mammals are firm, well defined, caseous, and even fibroid masses, which often closely resemble true tumours. Even in the tremendous infiltration occurring in the lungs of monkeys, in which two-thirds of the organ is turned into a caseous mass, a cavity or even fluid pus is a decided exception. The mesenteric nodes, which may reach the size of a

greengage plum, are usually firm, cheesy, or fibroid masses, and I have never yet seen pus in either liver or spleen.

The distribution of tuberculous lesions in birds is strikingly different. Instead of the lungs being the commonest site of attack, they are one of the rarest among the great viscera, and, in place of their lesions being the cause of death, I have only seen one case in thirty-five where they seemed to be so. The chief seat of the disease is in the abdominal viscera; first and most severely in the liver, next in the spleen, and third in the wall of the intestine and mesenteric nodes.

In only 20 per cent. of my cases were the lungs affected at all, and usually all that is to be found in them is one or two small, round, very firm nodes, which shell out of the lung parenchyma in removing the organs from the chest. These are often of a brownish colour, and of about the consistency of very hard, old, soap; indeed, some of them are so difficult to cut as to suggest a keratinous or horny change in their substance. All tuberculous nodes in birds are firm and usually well defined, and in many cases contain so much calcareous deposit as to render section of them with the microtome almost impossible.

If the tremendous susceptibility of the lungs in mammals is to be accounted for by their being the port of entry for aerial infection, how are we to explain the almost equally striking immunity of the bird's lung?—to say nothing of the well-known experimental fact that if a guinea-pig or rabbit be inoculated in the flank or abdomen he usually dies of pulmonary tuberculosis, and this, too, in spite of the fact that the guiuea-pig is extremely hard to infect, even by coating his cage bottom or mixing his food with dried sputum, and fanciers assure me that under ordinary circumstances he is almost exempt from tuberculosis.

The air passages of the bird are certainly no better protected against dust contagion than those of the mammal, indeed if anything rather less so, as the turbinate filter is less complete and the throat and trachea much wider.

Then if it is simply a question of exposure to aerial infection, it seems hard to understand why the lodgment should occur at the highest and most inaccessible parts of the lungs, the apices in our own species, and the dorsal borders on each side of the vertebral column in bovines, as Friedberger and Fröhner, Law and Stalker unite in stating that it does, only towards the posterior (caudal) border or base instead of the apex.

What seems to me a suggestive parallel is to be found in the localisation of glanders lesions in the horse. Most veterinarians regard the glanders infection as entering by the alimentary canal in the drinking water or food, and yet its severest and most fatal lesions are as a rule found in the lungs. Most suggestive is the fact that if a horse be tested by the subcutaneous injection of mallein, and killed forty-eight hours later, his lungs will be found clotted with small, firm, shot-like "tubercles," when no other trace of the results of the injection can be found. Even the toxin of glanders has a special affinity for the vertebral borders of the lungs. Schutz's interesting experiments have shown that when an excessive amount of infectious material is introduced into the stomach, although the lung becomes most seriously affected of all the organs, the abdominal viscera are also attacked.

And this appears to me the most probable relation of the mammalian lung to tuberculosis. By whatever channel the bacilli are introduced, they find their most favourable soil for growth in the lungs.

Nearly all the veterinarians I have consulted are inclined to the opinion that the commonest channel of infection is through the alimentary canal, and my own limited experience seems to point in the same direction. It is probable that the distinctly greater frequency of abdominal lesions in the lower mammals than in man may be due to the more voracious and less cleanly food habits of the former, the larger amounts of infectious material swallowed overcoming the resistance of the abdominal viscera as well as of the lungs.

Professor MacFadyean accounts for the susceptibility of the lung to tuberculosis upon the purely mechanical ground that the infection entering though the alimentary canal is taken up by the lacteals carried into the receptaculum chyli, and through this to the superior vena cava and right auricle. Thence it is, of course pumped to the lungs, and their mesh being the first capillaries through which it passes, the bacilli naturally lodge there. But it seems hard to understand why at least as many of the bacilli do not get into the portal system instead of the lacteals, and lodge mechanically in the liver capillaries. And this explanation completely fails to account for the remarkable immunity of the bird's lungs, when the abdominal viscera and lymphatics are simply packed with tuberculous material.

As to the curious immunity of the bird's lung in tuberculosis, it can only be said that it is in keeping with its low susceptibility to disease in general. Nearly all of the "plagues" and fatal diseases of birds attack only the abdominal viscera. I have found lesions of the lungs, of any sort, distinctly rare in any necropsies upon birds at the Zoological Gardens.

This anomalous distribution might at first sight be explained by the growth preferences of the avian type of bacilli, as Nocard's experiments have shown that if rabbits be inoculated in the usual way with avian tuberculosis material, the abdominal type of disease is produced, while with human material the pulmonary type results, and the same is true in the horse. in the rare instances in which he can be infected by the avian bacilli. But as Nocard as also succeeded in changing both human and bovine bacilli into the avian type so that they acquire virulence toward birds by cultivating them in collodion capsules in the peritoneal cavities of successive fowls, this preference for the abdominal viscera would appear to be little more than an acquired habit of a germ compelled to live in bird tissues.

It may, perhaps, be worth adding that although the lung proper of birds is comparatively seldom the site of disease, the other part of the respiratory system, the great air sacs, are much more so. They are extremely prone to be attacked by pathogenic moulds, which form a thick layer over their inner surfaces, often making a complete cast of half their cavity and in some cases filling it up solidly. A thick whitish exudate, not unlike tough cream-cheese, is poured out from the walls and upon this abundant crop of white, green, or black "mould-fur" grows, readily recognisable by the naked eye as well as under a lens. Among the water-fowl in the Gardens more die of this aspergillosis than of tuberculosis, and I have twice found the trachea completely blocked by "emboli" colonies which had adhered to its wall.—*The British Medical Journal.*

PARASITES OF POULTRY.

The internal parasites of poultry are numerous, but only two serious diseases are caused by such agents. The chief internal parasites are worms, but an often fatal complaint in fowls is due—anyhow, in part—to minute single-celled animals known as Protozoa. The most important vermiceous disease is Gapes.

The Gape Worm (*Syngamus trachealis.*)

Gapes is a disease caused by a nematode or round-worm which takes up its abode in the windpipe and sometimes in the bronchial tubes. It is called scientifi-

cally *Syngamus trachealis*. The Gape-worm is also known as the Red-worm and Forked-worm. Not only fowls and turkeys, but pheasants, sparrows, linnets, starlings, rooks, partridges, martins, swifts, and green woodpeckers are also invaded by this parasite. The disease is caused by the worms taking up their abode in the air-passages, and there irritating the mucous membrane, causing inflammation. These pests, if present in large numbers, also block up the trachea and stop the passage of air to the lungs. In both ways the birds may succumb.

The Gape-worm is nearly always found in capulâ inside the host; the small male worm being permanently attached to the female towards her head end, the two worms making a fork, hence its name the Forked-worm. In colour the Gape-worm is red, often bright red, and in length the female may reach four-fifths of an inch, the male seldom more than one-fifth. There is great variation in size, some females being only one-fourth of an inch long. As a rule, a number of worms may be found together in the fowl's trachea, often as many as twenty crowding in one particular part of the tube.

The symptoms of gapes are a curious listless gaping of the mouth, a wheezing cough and stretching forward of the neck, and the frequent appearance of frothy saliva in the mouth and sometimes in the nostrils.

When the female worm becomes mature and full of eggs, she and the attached male are expectorated by the bird. These worms lie about on the ground, etc., and sooner or later burst by cadaveric decay, when the minute eggs, not 1-250th part of an inch in length, are spread over the ground or in the water. Each worm contains a great number of eggs. It will be thus seen that land may soon be contaminated by a few birds suffering from this disease. The eggs hatch in damp places and in water into small white embryos. Both eggs and embryos, on entering a chick, develop direct into the Gape-worm.

Experiments have shown that birds fed with ova and embryos of *S. trachealis* will develop gapes, and thus no second host, such as we find iu the tapeworms, is necessary. Although a second host is not necessary, numbers of the eggs and embryos are swallowed by earthworms and doubtless fowls very often contract gapes when eating these useful annelida, which thus acts, as carriers of the disease.

It is chiefly in chicks and turkey poults that gapes causes the greatest mortality, although old birds are sometimes attacked. The birds obtain the embryos especially from polluted water and from damp ground, but also through the agency of earthworms. That wild birds play some part in its dissemination is also extremely probable.

Prevention and Remedies.

Any bird showing signs of the disease should be isolated. Chicks should not be kept with the stock birds. Fresh breeding ground should be used if possible every year. The worst outbreaks are always on overstocked land. Water vessels should be kept scrupulously clean and only pure water given to the birds. The drinking troughs are best cleansed by being put in boiling water and well scalded. The worms may be partly removed from the trachea by means of a feather dipped in oil of cloves or eucalyptus oil pushed down the windpipe and turned round and round, but not those lower down in the bronchi. A fumigating box, in which several birds can be placed at once, is useful; either Camlin powder or finely ground chalk and camphor blown into the box will loosen the worms, which the birds will expectorate during the violent fits of coughing the powder produces.

It is most essential that all chicks which die from gapes should be burnt or otherwise destroyed. If the birds are kept in small runs, the run should be purified, after an outbreak, either with gas-lime or watered with a 1 per cent. solution of sulphuric acid.

DIPHTHERITIC ROUP.

Diphtheritic Roup is one of the most contagious diseases from which fowls suffer. It is due—at least in part—to certain very lowly organised, single-celled animals, called Protozoa, which invade the mucous membrane of the mouth, pharynx, and even the crop and windpipe. This virulent disease manifests itself either as loose yellow cheesy patches or as small firmly-fixed nodules in the mouth, the latter especially around the tongue and beak. In these false membranes and the tissues beneath them may be found the minute parasites which either directly or indirectly cause the false growths. Certain authorities state that bacteria are the active agents, but the probability is that these Protozoa are entirely accountable for the disease. If left alone a diseased bird is almost sure to die.

Prevention and Treatment.

It is most important that any bird showing symptoms of this complaint should be at once isolated, and the drinking vessels, etc., in the run well disinfected by boiling and strong carbolic acid.

The loose growths should be very carefully removed with a blunt knife or two blunt needles, and the mouth well washed out with a 10 per cent. solution of salycilate of soda or boracic acid. Probably several operations will be necessary as some small diseased areas may escape notice. In any case the mouth is best treated several times with the disinfectant The hard patches may be burnt away with lunar caustic. Every dead bird should be carefully destroyed, and the run or yard disinfected either by sulphuric acid or by a dressing of fresh gas-lime after an outbreak. The best results in treatment have been obtained with salycilic acid or salycilate of soda, and it is advisable to place a 1 per cent. solution for the fowls to drink for a week after any signs of the disease have been noticed in a run. In no case should a bird be allowed freedom until it has been completely cured. When the disease is very advanced, it is best to kill the bird and destroy it; but if taken in time, a cure can easily be effected.

Another disease closely related in origin to this form of roup, and often found with it, is a comb and wattle disease called *Epithelioma contagiosum;* it appears as yellowish-brown nodules varying in size from a pin's head to that of a bean. A hollow, from which a yellow exudate oozes and forms a brownish crust or scab, appears in these nodules. The parasites are minute protozoa, which invade the epithelial cells. The best treatment seems to be painting the diseased areas with oil of turpentine and isolating the bird.

To avoid all parasitic diseases of poultry, it is very important that fresh stock birds should be well examined before being turned out, as a single diseased bird, especially if it be a cock, may soon contaminate a whole run. —*Board of Agriculture Leaflet*, No. 58.

BIOLOGY OF YEAST.

Prof. J. R. Green delivered a lecture at a meeting of the Pharmaceutical Society on November 14th, the following abstract of which we copy from *The Chemist and Druggist.*

Leuwenhoek, a Dutch alchemist, was the first to ascertain that yeast was more than a scum. In 1628 he found it to consist of small globules. Much controversy ensued as to whether yeast was animal or vegetable, and it was not till 1820 that simultaneously Cagniard-Latour, Kützе, and Schwann established the vegetable character of yeast by noting the process of budding. Professor Green here paid a tribute to the admirable work of Dr. Emil Hanson, of Copenhagen, to whom very much of the present-day knowledge of the yeasts and their culture is due.

The chemical aspect of fermentation was taken up by Lavoisier at the end of last century, and it was he who found out that sugar by fermentation splits up into carbon dioxide and alcohol. He collected the two, and found that the weights approximately represented the amount of sugar fermented. Lavoisier's hypothesis and analysis were not, however, perfect, as the quantities obtained would not quite reproduce the sugar; it was necessary to inculcate some water. In 1847 Dubrunfaut discovered that cane-sugar had to be converted into a non-crystallisable sugar before it would ferment, and that acids acting on cane-sugar split it upon into glucose and fructose. A further step was made in 1860, when Berthelot found that the change was associated with the incorporation of a molecure of water into the sugar. In brewing processes yeast did not work on cane sugar, but on malt sugar (maltose), and whereas cane sugar was split up into two products, dextrose and levulose, which turned the plane of polarised light respectively to the right and the left, maltose was split up into two sugars which both turned the plane to the right. Berthelot set to work to find out how this comes about, with the result that he isolated enzymes which do the work; these are invertase and maltase. The question next arose as to what is the relationship between the yeast and the sugar which it ferments, and why this peculiar splitting-up is necessary. Pasteur was the first to give a reasonable explanation, his theory being that as oxygen is necessary for life, and as yeast cannot get it from the air, it takes it out of the sugar molecule. The chemistry of the decomposition did not fit in with that theory. Indeed, there was little direct evidence to support it, Monoyer's claim that he had discovered that oxygen was a product of fermentation never having been confirmed. But there was one notable point—viz., that the whole of sugar is not by fermentation split up into ethylic alcohol and carbon dioxide, for 4 to 5 per cent. of it is changed into succinic acid, glycerin, and other bodies; and now it is generally conceded Pasteur was right to a degree—fermentation is the expression of the organism obtaining energy in the absence of oxygen. Schutzenberger contended that if this theory held good fermentation ought not to go on in the presence of oxygen, whereas it is really more energetic, and this led to the view that the oxygen was nutriment to the yeast. If yeast is put into an organic nitrogenous liquid alcohol can be produced without sugar. Pasteur's theory received support from the independent investigations of Lachartier and Bellamy on the ferments of fruits, and after that the next discovery was the isolation of diastase—an enzyme with the property of breaking down the cane sugar molecule. Then Büchner startled the scientific world and settled a hitherto unsolved problem (whether yeast contains as well as secretes a ferment) by so treating yeast by comminution and pressure as to separate from it a liquid enzyme capable of fermenting sugar in the absence of the organism, therefore in absence of life. Büchner's results were questioned in some quarters, but they have since been overwhelmingly proved to be correct. Büchner calls his enzyme zymase. Since then a fifth enzyme, trypsin, has been discovered (through the existence of tyrosin in fermentation liquids), and this led up to the important observation that yeast in its normal condition contains glycogen and the enzyme trypsin, these sufficing to give it the start in nutrition. Finally, the lecturer discussed the question whether the action of yeast-enzymes takes place in the yeast-cell, or whether the cell excretes the ferments into its environment. Undoubtedly both things take place, and Walter Gardiner has demonstrated that the cell-wall is permeated by exceedingly fine filaments of protoplasm through which invertase at least gets into the saccharin liquid.

The PRESIDENT, in moving the thanks of the meeting to Professor Green, said he had not referred to the important part he (Prof. Green) took in corroborating Büchner's results.

IDENTITY OF A HORSE.

At the Maidstone Sessions Arthur Codrai, cab-proprietor, of Kennington Road, answered to a charge of being in the unlawful possession of a horse knowing it to have been stolen. The case came before the Rt. Hon. J. G. Talbot, M.P., and a jury on Oct. 26th.

Mr. Rose-Innes, instructed by Messrs. Bracher, prosecuted; Mr. Hutton, instructed by Mr. H. I. Sydney, of Renfrew Road, Kennington, defended.

THE PROSECUTION.

All the witnesses were ordered out of court, and Mr. Rose-Innes stated the case for the prosecution. On January 29, 1896, Mr. Ernest Cole, the prosecutor, a farmer, of Dunton Green, Sevenoaks, purchased a chestnut mare at the New Kent Road Repository. It was then rising five years old. From that time till May 13 of this year it remained in his possession, and was ridden by him to the West Kent Hunt, and in point-to-point races. On the latter date, after 5 o'clock in the day, it was stolen from a field on prosecutor's farm, a gelding being taken at same time. The animals were traced to Catford, where all trace of them was lost. Notice was given to the police, and descriptions circulated, but nothing was seen of the mare for some time. On July 28, Joseph West, a friend of Cole's who had written its points in a book, was in London, and when near the Monument saw a horse tallying with the description he possessed in a hansom cab. He got into conversation with the driver, found the owner's name and address, and went to Codrai's premises. After seeing Mrs. Codrai, West wired to Cole, and the next day they went to Kennington Road. Cole posed as a possible purchaser till he had thoroughly examined the mare, and came to the conclusion it was the one he had lost, when he threw off all disguise and claimed it. Codrai told him he was in error, that the mare was bought by him twelve months previously, and he could produce the receipt. Requested to do so, he brought forward a bill from Ward's Repository, dated July 5, 1898, for three animals, but the chestnut was there described as a gelding. This had an important bearing on the subsequent proceedings. Cole said the receipt had no reference to the mare, sent for the police, and the animal was taken to the Greenyard. There, out of nine horses, it was identified by his father, and Codrai was arrested, taken before the magistrate, and committed for trial. As to the identity of the mare, counsel urged that the points of similarity between the one lost and the one found at Codrai's were so numerous and so peculiar that it was impossible there could have been such an absolute reproduction in the history of the world. The two fore-knees of Cole's mare were chipped. It had two white stockings on the hind feet, rising to a considerable height; a white star of considerable size on the forehead, a humour-mark on both shoulders, and a flat rib. All these points were present in the mare seized, and this fact, together with the evidence of identity he should call, made a case against prisoner it would be difficult to wipe out. Besides this, however, Mrs. Codrai made a certain statement to West on the first day which she contradicted the next, and Codrai at the police station said he did not buy the horse from Ward's, but from an Irish dealear there, and could not tell where to find him, yet in a few hours produced the man. These circumstances, he urged, were suspicious, and he at once proceeded to call evidence in support of his statements.

Mr. Ernest Cole, of Rye House Farm, Dunton Green, went into the box, and bore out the allegations in counsel's speech. He valued the mare at 80 guineas. Cross-examined, he had only paid ten guineas for it. When his father identified the mare, it was the only chestnut there, and, of course, he came to find one of that colour.

The mare had been in the custody of the Sevenoaks police since it was identified. It was now seven years old, rising eight. The horse was not six off. It was seven off. He did not notice that the mare claimed had a cut nostril. The one he lost did not before it disappeared. Codrai offered no opposition to the production of the mare. When Cole came up he brought Ware, one of their men who knew the horse, but though he was fetched for the purpose of identification, he was not produced at the police-court—why, witness could not say. Ware was not present that day to give evidence.

Here counsel said Ware had been sent for, and should be put in the box—a promise which was not fulfilled.

Pressed very hard as to whether Mr. Coleman, veterinary surgeon, of Newington Causeway—who put the horse bought by Mr. Cole in 1896 up for sale in the New Kent Road Repository—had not been down to Sevenoaks to see the mare now in dispute, and come to the conclusion it was not the one he sold, witness was ultimately forced to admit Coleman had made a statement to witness's father to that effect.

Mr. Joseph West, a Brasted baker, was called to prove meeting with what he believed to be Cole's mare in the City, and the steps he took to hunt up Codrai and send to Dunton Green for Mr. Cole. The points of the lost mare, written down in his pocket-book in May, tallied in his opinion with those of the mare in the cab. The chief point in connection with this was whether the mare seized had a cut nose, whilst the mare lost had not; and how long the knees of either had been chipped.

Inspector Fredk. Pike, of Kennington Lane Police Station, narrated how Codrai was brought to the station by a constable and Mr. Cole. The latter wanted the mare, and witness said he could not take it unless he charged Codrai. Cole wired to his father, and Pike wired to Superintendent Taylor, of Sevenoaks, to bring up witnesses. Codrai, Pike alleged, first said he bought the mare by auction, and then said he bought it off an Irish dealer, but did not know where to find him. He also produced to witness the receipt for a chestnut gelding, and said the Repository people must have made a mistake. Witness had an interview with prisoner's wife, who volunteered a statement that when she told Cole they had only had the mare two months she made a mistake. She thought Cole was a buyer. It was 10 in the morning of July 29, this year, when he first saw Codrai at the station; at 2 the latter came back with Spiers, the Irish dealer from whom he said he bought the horse. Spiers could only say he believed it was the one he sold in 1898 to Codrai. Codrai also brought a letter from Ward's Repository to say that the description of the chestnut bought by prisoner in July, 1898, as a gelding was an error; it should have stated the chestnut was a mare. Cole senior then came and picked out the mare at once from amongst other horses. Codrai was charged and handed over to Sergeant Strood, of Sevenoaks. In cross-examination, Pike admitted Codrai was in a good way of business, had been for many years, and was, as far as the police knew, a thoroughly honest, respectable man.

A lot of evidence as to identification of the horse was now taken. First came Cole sen., who admitted his son's mare had no cut nostril in May; Corporal Charles Strood, a county policeman, who took Codrai in custody to Sevenoaks, was quite positive the mare was the one he had seen Cole ride to the hunt, though when it came to cross-examination it turned out he had never made a close examination of it; and Messrs. Alexander, of Kemsing, Brydon, of Sevenoaks, and Langton, of Swanley, members of the West Kent Hunt. None of these, however, could testify they had ever made a close examination of Cole's mare. They had seen it constantly, and believed the one seized was the same.

John Skinner, a farrier, said he knew the mare well. He had shod it constantly for Cole. He had good reason to know her. She was awkward to shoe. He knew her better than three parts of the horses that came to him. Cross-examined, her feet were inclined to be shelly. They were smaller than when he shod her—just as they would be after travelling over roads.

Chas. Westley, huntsman to the West Kent Fox Hounds; Thos. Fishenden, a member of the Hunt; John Sewell, of the Crown, Sevenoaks; Herbert Simmonds, of Wrotham; and William Barton, corn merchant; all identified the mare generally, but none of them had made a close examination of her.

Mr. Richard Roberts, veterinary surgeon, of Tunbridge Wells, said he examined the mare at the Sevenoaks Police Court. Her present age was seven years off. On the near side shoulder he found humour marks. Counting from behind, he found the fourth rib much depressed and flattened—a most unusual thing. On the hind quarter was a dark patch of hair about the size of a 2s. piece—a natural mark, probably there from the time the mare was born. It corresponded almost to a birth mark. The mare was considerably lower in front than behind—another unusual circumstance, as most horses are higher in front than behind. She was 1½ inches lower than at the croup. She had a star on the forehead and an enlargement of the off-hock. It appeared quite normal, and had probably been there all her life. There was a mark on each knee, and the off was slightly enlarged. That was what was called chipped knees. She had white stockings, the near one rising higher than the other.

Cross-examined: There was a marked distinction between a horse 7 off and 6 off. He did not agree that a horse at 6 was judged chiefly by the amount of wear of its incisor teeth. He did regarding the central ones, because the black marks disappeared, the teeth lost their oval character and became more and more triangular. Their colour altered very little. The colour of this mare's teeth was consistent with those of a horse 6 to 7. Sometimes corner teeth did not come into apposition till they were 6, 7, 8 or 9. In this mare there was a notch on the top of the corner teeth more in character of a horse of 7, but it was consistent with a horse of 6. Witness considered a President of the Royal College of Veterinary Surgeons a "fair" authority. The mare had a slight scar on the off nostril, which might have been caused by a horse being thrown down or against a window, but he thought this scar was from a fall. It was slightly necessary to raise the hair to see the scar on the left knee, but the scar could be seen without. Chipped knees were wounded knees, and this mare had chipped knees. He should keep to his own opinion about that. The birth mark was obvious to any one. Any one riding constantly behind it in the hunting field would notice the mark. He noticed two prominent splints, but they had not been there long—perhaps a month. The horse would not in consequence be still slightly lame. Numbers of horses had splints and never got lame. He did not make a particular examination of the legs, and did not notice a scar on the near fore-leg.

Mr. David Pugh, veterinary surgeon, of Sevenoaks, said he had done work in the thoroughbred stables of the neighbourhood for 10 years. He examined Cole's mare on August 5th. It was 7 off, had a white star on the forehead, and a depressed rib on the near side, the 4th from the end, and the 15th behind. He had seen a pony with a depressed rib, but never before a big horse. The near hind hoof was white, with three black stripes from top to bottom. The nose was blemished. Probably she had been down some time and cut it across. The knees had marks of splints, but bore no evidence they had been there a considerable time. He had known the mare a long time, and recognised her when the groom was leading her at the station.

Cross-examined: He saw the mare in May last also, and was sure the splints were not there then. He did not feel her legs then, but would have seen if they had been there. A horse was not always lame when it had splints. The majority of horses got lumps when they developed splints. It took from 2 to 6 weeks to get over them. He should think this horse probably, but not certainly, developed splints after she left Sevenoaks. He should say the cut on the nose had been there some time—possibly 12 months. The mare was 7. The indication was that they lost marks on the central teeth, they became almost level, and later became triangular. Teeth in apposition was not an indication a horse was 6 years old. It was so in some handbooks, but he disagreed with that. The teeth distinctly altered at 7. This mare's teeth were yellow. The caps of the central and lateral teeth were worn down. The mare had a birth mark, and the knees were both bumped and chipped. The chips were principally on the near knee. The knees were in the same condition when he saw the mare at the station as in May. There was a fresh chip on one knee, but no difference in the old one. The hoofs were not shelly, the mouth was.

Mr. Percy Gregory, M.R.C.V.S., Tunbridge Wells, said he examined the mare in September. It had a star on the forehead, and two white stockings, the near hind one being the longer. The knees showed marks of an old injury. They were chipped, the off being enlarged as well. The mare had humour marks on the near quarter, and on the near shoulder, extending to the lower portion of the neck, a quantity of blotches. There was a birth-mark on the near hind quarter. On the near side ribs was a peculiar formation—a flat rib. He thought it was the fifth from the last rib. You could feel the difference in the configuration of the rib. It was the same the other side, but not so pronounced. He had never seen a flat rib before, though he had practised for 23 years. The mare was 7 years off. It was usual to find the crown of corner teeth not in apposition to the corresponding teeth. One tooth was shelly, but only slightly—the top part was all right.

Cross-examined: It was laid down in some books, and this apposition should be consistent with a seven-year-old horse, but he disagreed with that. The mare's teeth were yellowish-brown—not white. Except for the rib peculiarity there was nothing unusual about the mare. The flat ribs on either side would be obvious to any one making a careful examination. There was a cut on the knees of old date—six or eight months old. There was a healed-up angular scar on the off nostril. The cuts on the knees were only perceptible by careful examination. The off-knee cut was the larger of the two. The knees were both chipped. The off-knee was bumped as well. The hoofs were shelly, and the birth mark was obvious to any one riding alongside the horse. He did not think any one could help seeing it.

The Defence

Arther Codrai was at once put into the witness-box. He had been in business, he said, 18 years, and in the same neighbourhood during all that period. No suggestion or any kind had been made against him in all that period. After giving evidence as to what took place up to the time Cole claimed the mare, Codrai said he replied that he gave £20 for it at Ward's Repository, and if Cole liked to give him £40 he could have her. Cole replied, "It is mine, and I shall take her." Codrai said, "You had better call a constable, and take the mare and driver to Kennington Lane." Cole was shown the receipt for the mare, which described it as a gelding, but he did not point out the error. Inspector Pike pointed that out on the second occasion at the police-station, Codrai also explained the incident about the Irish dealer, Spiers. This man lived at Lurgan, in Ireland, but had lodgings in Edgware Road. He went all over the kingdom buying up horses, and frequently got to Ward's to sell them. Codrai's statement to Pike was that he did not know where to find Spiers. But seeing how serious matters were looking, he went to Ward's and got from them a letter stating their books showed the chestnut was a mare, not a gelding, and found that Spiers was in the vicinity, so he brought him back to the station at once. Witness then described how he broke the mare in, and Barker drove her from about September in a hansom. In January the mare drove her head through an omnibus window. She cut her nose severely, and caused the scar to be found on the seized mare. The 'bus company made a claim against him, and he made a report on the subject to Mr. J. Emmett, the Secretary of the Hackney Carriage Association, a mutual insurance combination.

Cross-examined: He did not tell Inspector Pike he could not recollect the name of the Irish dealer. He said plainly he bought it of a man named Spiers, but could not tell where to find him. The mare injured her knees five or six weeks before Cole called. When he bought her, the mare was five, rising six. He (witness) was pretty well at home all day on May 13, the day Cole's mare was stolen from Dunton Green. On May 14 he drove a brake to Broxbourne for a beanfeast, and one of the horses was this very mare; who was shoed on the 13th, and paid for on the bill which the farrier rendered that day. (The farrier's bill was produced).

Mr. Spencer, from Ward's Repository, went into the box, and produced Ward's books to show that they sold Codrai a chestnut mare on July 5, 1898. It was witness's error in transcribing from the book which led to their sending a bill for a chestnut gelding.

Mr. B. Codrai, son of prisoner, gave evidence to show that the mare had been in his father's possession since July 5, 1898. Mr. Alfred Codrai, brother of prisoner, did the same. Christopher Ford, Codrai's harness cleaner, corroborated their evidence, and then came,

Herbert William Barker, cab-driver, badge 3,834, said he remembered the chestnut mare being bought, and had driven it constantly from September, 1898—the time its breaking-in had been completed. He was in charge of her in January, 1899, when she ran her head through a 'bus window. This accident caused the cut on the nose.

Next came Mr. Pester, a cab master, who rode with Codrai when the mare was broken in; and

Mr. Russell, a farrier, swore to shoeing the mare every fourteen to twenty days for several months before its seizure. The witness put his book in, from which it could be seen that a "L. chestnut," meaning light chestnut, had been continually charged for from autumn, 1898, to May 13, 1899. He had been a farrier in the district 27 years.

Mr. Geo. Samuel Strickley, of 30, Albert Street, Kennington, hackney carriage driver, and C. Gough, horse-keeper, showed that the mare seized had been in the possession of Codrai since the summer of 1898, that it was the only chestnut mare he had in all that time. Mr. W. W. Duling, clerk, proved riding behind the mare for many months, and the veterinary evidence for the defendant was reached.

Mr. John Coleman, M.R.C.V.S., said he had seen at Sevenoaks the mare claimed by Mr. Cole. In January, 1896, he put up a mare for sale at the repository in the New Kent Road, which was bought by somebody. It was a chestnut mare, a nice looking animal, and stood about 15.3. He bought her in the previous November. She was four years off when he sold her. At the request of Cole he went down to Sevenoaks to see the mare in dispute, and was asked, "Was it the same mare that he had sold in 1896?" He said it was not.

Cross-examined: The horse he sold would be eight

off now. Witness was cross-examined at great length to explain how it was that a horse 4 years old in January, 1896, would be eight rising nine in 1899. He explained time after time that a horse's age was dated from the 1st of May, so that the mare he sold would be five in May, 1896, six in May, 1897, seven in May, 1898, eight in May, 1899, and would therefore now be eight rising nine. This explanation, however, counsel for the prosecution either could not or would not understand. Witness afterwards saw the mare in the possession of the police, and said she was not the one he sold in 1896, and could not be on account of her age alone. Besides, the mare he sold was a much superior animal to the one in dispute.

Prof. Penberthy, a past President of the Royal College of Veterinary Surgeons, said he was president of that institution in the year 1897-98. He was called to see this mare in dispute on the tenth of October. It was a chestnut, six years old, scarred on the off nostril and had evidence of a slight injury on the upper lip. This might have been caused by a horse having a collision with an omnibus, and being cut by the glass. The right knee was enlarged considerably, and there was evidence of a scar. In fact there was a scar, and a very slight evidence of a previous injury. Taken generally, it had what would be called bumped knee. The scar made a chipped knee. He could not find any birth mark, or any evidence of a flat or broken rib. He could not regard the hind hoofs as shelly. The near hind hoof was partly black and partly white. There was a prominent splint on the outside of each fore leg. They had been there a long time. There was a slight scar on the inside of the near fore leg.

Cross-examined: He had never seen the mare before, and the examination lasted probably under half-an-hour. Experience and the absence of everything that was present in a recently formed splint led him to believe the splints in this mare were of old standing. They were not surrounded or accompanied by swelling. They had been there 4, 5, or 6 months at the shortest. Taking everything into consideration he should think they had been formed twelve months. When splints were forming the parts surrounding were generally swollen, hot, and tender, and the splint, instead of being well defined, runs into the rest of the leg. In this mare the swelling had subsided, leaving the splint well defined. It was possible for the witness to make a mistake, and he did not think himself infallible. A flat rib and a broken rib were not necessarily the same thing. A broken rib might become flat and depressed. It was possible for a vet. of average intelligence to discover a flat rib. Witness examined the mare specifically on that point, but could not discover it. He could not find a flat rib on the near side or the off side. He found a scar on the nose, and knees were what were so described as bumped knees, but did not find an appreciably large scar. He should describe the knees not as chipped, but bumped. They had been in that condition two or three or perhaps five or six months. On the right knee there was a scar that might have been there six months or two years. On the left knee the scar was comparatively recent. There was a hard scar on the nostril—an angular scar such as would be made by being cut by a substance like glass. Between the age of four and seven was the period of adolescence. At seven a horse was in full horsehood. The horse was then developed. The greatest change in a horse had not then taken place, but a moderate change. He looked for the birth mark but could not find it.

Mr. DOLLAR, of New Bond Street, veterinary surgeon to the Prince of Wales, said he had made an examination of the mare in dispute. He looked for a birth mark and could find none. The animal appeared to have only two colours on it. It was white on the hind legs and forehead; beyond that it was nothing but a chestnut. He examined the mare's mouth, and was of opinion it was 6 years old off. He could explain why. There was a small cicatrix on the nose, external to the right nostril, and more or less between it and the neck. He should think the injury was several months old—2 or 3 at least, perhaps longer. A collision between a horse's head and the glass of an omnibus might easily have occasioned it. The off knee was swollen and cut. The near knee showed nothing abnormal. At the lower portion of the swelling on the right knee there was an abrasion about half the size of a horse pea. On the near knee only the most careful examination showed a slight abrasion. If he had to choose between two terms—chipped knees or bumped knees—he should say these were bumped knees. He found no indications of a flat rib—both the animal's sides were somewhat flattened. It was what one might call a flat-sided horse.

Cross-examined: To an expert there was no difficulty in finding the age of the horse between 6 and 7, though mistakes would happen. Given reasonable attention there was no likelihood of a mistake. There was nothing out of the ordinary in the flattened ribs of a horse. This was a flatsided horse. The ribs were rather flat than round. To call the horse's knees chipped would be a wrong description. There was an enlargement on the right knee—a swelling—but he should hesitate to say it was caused by the horse going down. The abrasions were probably 6 weeks or two months old. He did not think the abrasion would be permanent. The mare was full-coated when he saw her.

THE CASE STOPPED.

When they had been heard, and other vets. were coming forward, the Rt. Hon. J. G. Talbot appealed to Mr. Rose-Innes whether he could expect any jury to convict in the face of such a conflict of evidence. Counsel, however, pressed for the production of Mr. Spiers, the Irish horse dealer, who went into the box. Spiers gave the name and address of the man from whom he got the mare sold to Codrai in July, 1898—that to the best of his belief the seized animal was the same. Counsel for the prosecution pressed Spiers to more deeply pledge himself, till at length the Chairman intervened with the remark that he preferred a witness who gave his evidence as Spiers was doing.

The Chairman then put the question to the jury whether there was any possibility of their convicting? The foreman rose and said some of them did not know what the charge was—(laughter)—and after this had again been read, they at once returned a verdict of "not guilty."

Some curious things took place after the verdict. Superintendent Taylor, of Sevenoaks, at first intimated that he should require something like £2 for the keep of the mare before he returned it, and ultimately, when that sum was forthcoming, he asked £5, and, before Inspector Pike of Lambeth, wanted Codrai to sign a paper agreeing to take no further proceedings—a matter which only concerned the prosecutors. Codrai confused, and broken down by the trial he had gone through, would have signed, but his friends refused to let him, and ultimately no paper was signed, no money paid for maintenance, and the mare handed over.

So, for the time, ended a case remarkable for the great conflict of evidence, and for the bias of the police against the defendant—a bias exemplified by the fact that when witnesses for the defence went down to see the mare they were told by Superintendent Taylor, of Sevenoaks, "it was Mr. Cole's mare, and they could not see it," and only got to see it after much pressure.—*South London Chronicle.*

THE ROYAL (DICK) COLLEGE.

It is hard that kindness should be not only unappreciated but even flouted. A fortnight ago, we, in our kindness of heart, referred at some length to the fact that the Veterinary Colleges in Great Britain were suffering seriously from the shortage of students caused by the lengthening of the qualifying course and the stringency of the preliminary examinations, which had to be all taken in one part. As illustrating the extent to which the Veterinary Colleges were suffering through this cause, we cited some significant facts respecting the position of the Royal (Dick) College. We showed how, at the last meeting of the Edinburgh Town Council, one of the Councillors called attention to the fact that "there was a sum of £13,500 to the bad under the Dick Trust," and the City Treasurer, as well as the Lord Provost, intimated that this grave state of affairs was being considered elsewhere; the Lord Provost further intimating that he "quite agreed with the general principle that the municipality should not undertake the carrying on of any business." In view of these facts, we quoted some figures from the Edinburgh Municipal Accounts, showing that, although the most rigid economy appears to be exercised in the management of the Dick College, yet the College was steadily increasing its accumulation of debt, the "deficiency at close of year" being stated in the accounts at £939 19s. 11d., while the "net capital deficiency at close of year" was stated at £13,501 9s. 10d. Professor Mettam, the secretary of the Dick College, now comes forward to say that our figures are "so erroneous and misleading" that he thinks it right to take some notice of them. He says, "There is no debt whatever due by the College to the ratepayers, and no chance of there being any such," as the "capital debt" referred to is due to creditors who are amply secured by mortgages over heritable properties. The Professor further states that the College premises are assessed at £600, and the Dick Trust "possesses lands, feu duties, and other assets which yield a revenue of over £500 per annum, to say nothing of a further sum of upwards of £200 per annum derived from another source." The inference to be drawn from these statements is that the Dick College is so richly endowed that its trustees can afford to view with serene complacency that "diminution of students which has affected this College in common with other similar institutions."

We shall see how far these statements bear out our contentions. The debt of £13,500 odds—which, as Professor Mettam admits, has been accumulated by the College in recent years—is money borrowed by the Town Council acting as the Dick Trust. Of that total debt, a sum of £9500 has been borrowed from another Town Council Trust, namely, the Governors of the Trinity Hospital. A further sum of £1246 is stated in the accounts as being a "loan from the Trustees of the late Mary Dick." A further sum of £2713 17s. 11d. is stated in the accounts as a "Temporary Advance from the Common Good or Proper Municipal Account." In addition to that "Temporary advance from the Common Good," there is a further sum of £1426 1s. 5d stated as a "Temporary Advance from the Proper Municipal Account" to the Veterinary College Fee Fund. It will be news to anyone to be told that advances from the "Common Good or Proper Municipal Account" are not of the nature of a debt to the ratepayers. And how can Professor Mettam show that these "Advances" from the "Proper Municipal Account" are anything else but debts to the ratepayers?

It is quite true that the College draws a revenue of £638 13s. 7d. from rents, feu duties, and dividends on railway stock. But against this revenue of £638 odds there has to be set a sum of £424 paid as interest on mortgages, loans, etc. A further sum of £192 7s. 8d. has to be paid for repairs, ministers' stipends, and other public burdens, and a further sum of £145 has to be paid as "Expenses of general management." How much of that revenue of £638 is left after these sums are disbursed?

We do not doubt that the College is assessed at £600 per annum, and whether the College buildings are of that annual value or not is a point that does not concern us. Anyway, we may take it that the College is rent free, and we now come to see how its financial accounts work out, apart from its revenues from rents, feu-duties, etc. We find from the accounts that the "charge" and "discharge" from the teaching and practising sections of the College work out as follows:—

	£.	s.	d.
Receipts from students' fees last year	1217	4	0
Receipts from veterinary practice by the College staff	996	16	0
Total receipts	2214	0	0
Paid for teachers' salaries	1489	10	6
Paid for maintenance of collegiate section, advertising, janitor, etc.	659	2	8
Maintenance of "Practice" section, drugs, etc.	424	4	8
Total expenditure	2572	17	10

The figures show that, even although no charge be made as interest on the money invested in the College buildings, the College, as a commercial enterprise, has in the course of last year netted a loss of £358 17s. 10d.

With regard to the closing sentence in Professor Mettam's letter, we hasten to express our unqualified satisfaction at being told that "the number of students matriculating in the present session is nearly 50 per cent. more than it was some years ago." It is quite possible that the number of students matriculating this session may be 50 per cent. more than it was some years ago, and yet the number may be very small. We, therefore, invite Professor Mettam to state in precise figures the number of students matriculating at the Dick College this session, as compared with those who matriculated in each of the last six years. When he is at it, he might also inform us how many of these new students passed at the matriculation examination held in the Dick College last month.—*North British Agriculturist.*

UNLAWFULLY LANDING A DOG.

Major George Wallace Hampton, of York House, Thames Ditton, was summoned, at the instance of the Board of Agriculture, for unlawfully landing a Lapland dog in Great Britain without a licence, and acting contrary to the importation clause of the Dogs Order, 1897. Mr. Packe prosecuted on behalf of the Board of Agriculture. Mr. Mead, having read the order, observed that it did not say no dog shall be landed without a licence. It simply stated a dog must not be landed. That was a very loose way of drawing the order; there ought to have been an express provision. Perhaps Mr. Packe would represent that to the Board of Agriculture. Thomas Cotterill, Customs officer, said that on October 10, when on board the steamship Orlando, from Christiania, the defendant asked him if a licence had come down for the landing of his dog. Witness said no licence had come through his department, and he could not sanction the landing of the dog. Major Hampton said he must take the dog with him, and did so. Before doing so, however, the Major wrote a description of the dog for witness. In answer to the charge, the defen-

dant said that while in Norway he bought a dog for his little boy. On getting to Christiania he was told a licence from the Board of Agriculture was necessary before the dog could be landed in England, and on speaking to the shipping agent about it he was told the order had become obsolete. In order to put himself right he wrote to the Board of Agriculture about the dog, and when on the vessel the last witness made a great mystery about the matter. If dogs were not allowed to be landed, why did not the Customs officer prevent him landing his animal, when it could have been sent back to Norway? Mr. Mead said the law was not administered in that way. Under any circumstances ignorance of the law was no excuse, and the defendant himself produced a document in which the duty of the public was clearly stated. There was to a certain extent a defiance of the law, and the defendant would be fined 40s. Major Hampton said he had given the Board of Agriculture notice that he would carry the matter to the House of Commons.—*The Times.*

MILK IN LONDON.

The usual weekly meeting of the Committee of Works of the St. George's Vestry was held at the Offices, Ebury Bridge, on Tuesday morning, Mr. H. W. Bradford presiding.

The Bill of Health.

Dr. Corfield, the Medical Officer of Health, said he had had referred to him by the Vestry a letter from the Vestry Clerk of Hackney, with respect to the presence of tubercle bacilli found in milk at the Jenner Institute of Preventive Medicine. The letter stated that the Hackney Vestry were of opinion that steps should be taken to induce the Government to initiate legislation to stamp out bovine tuberculosis, on the lines of the recommendation of the Royal Commission on Tuberculosis, and that they had memorialised the President of the Board of Agriculture accordingly, and had also resolved to prepare a circular and distribute the same throughout the district, advising the inhabitants to boil all milk before use. They also asked this Vestry to take similar action. Dr. Corfield said he understood that it had been found in the Hackney district that 22 per cent. of the milk supply contained traces of tubercle bacilli. The recommendation was made with the view of stamping out tuberculosis in cattle, and he was of opinion that the Vestry should join with Hackney in memorialising the Board of Agriculture.

Mr. Everitt suggested that the doctor's report should be sent to the Parliamentary Committee.

The Chairman: I do not think that is necessary. We are quite capable of dealing with it.

Mr. Everitt: Very well, I will move that Dr. Corfield's recommendation be received and adopted.

Mr. Owensmith seconded the motion, which was agreed to.

Mr. Saunders moved that a copy of the resolution be sent to the Hackney Vestry.

Mr. Burgess seconded the motion, which was also carried.—*Chelsea Mail.*

'Ware Cats.

At the meeting of the Beckenham School Board on November 10, the Clerk congratulated the district on its immunity from diphtheria, as the disease was quite an epidemic in other parts of Kent, and a very singular case had come under his notice from a neighbouring parish. In one house four children contracted the disease one after another, and all efforts to trace the origin failed until the medical officer noticed that the family cat looked sick. The doctor made an examination of the animal, which resulted in the discovery that the cat had diphtheria in a very bad form. The affected children had been in the habit of playing with the cat, and there is no doubt that they caught the disease from it.

ARMY VETERINARY DEPARTMENT.

From *The London Gazette*:

War Office, Pall Mall, Nov. 13.

Vet.-Lieut.-Colonel W. S. Adams is placed on retired pay.

War Office, Nov. 21.

Yeomanry Cavalry. Royal North Devon (Hussars). Vet.-Lieut. W. Penhale to be Vet.-Captain.

Nov. 17th, 1899.

Vet.-Major J. A. Nunn, was called to the Bar as a barrister-at-law of the Honourable Society of Lincoln's Inn.

OBITUARY.

Henry F. R. Rickell, M.R.C.V.S.
Graduated, Edin: April, 1885.

Mr. Rickell died at Liverpool, on the 10th inst. He was second son of the late Francis Rickell, of Warter, East Riding.

CORRESPONDENCE

PROFESSIONAL ADVERTISING.

Sir,

Ways and means of advertisement are numerous. Would you please insert the enclosed in the next issue of *The Veterinary Record*, taken from the *Sussex Daily*. —Yours faithfully,

Milk.

BUSINESS ANNOUNCEMENTS.

TONGDEAN DAIRY FARM, DYKE ROAD, BRIGHTON.

I have much pleasure in offering the inhabitants of Brighton a Supply, Twice Daily, of the Purest NEW MILK from Tested Cows.—Yours faithfully,

P. W. Holland.

The following is a copy of the Veterinary Surgeon's Certificate:—

[Copy.]

Goldsmid Road, Brighton.
14-11-'99.

Harold Sessions, F.R.C.V.S.; Gerald Bloxome, M.R.C.V.S.

Dear Sir,—In accordance with your request we have carefully examined all the Milking Cows on your Farm at Tongdean, and have subjected them to the Tuberculin Test.

We believe them all to be healthy and free from Tuberculosis.—Yours faithfully,

H—— S——, F.R.C.V.S.

P. W. Holland, Esq., Tongdean.

[We entirely differ from our correspondent in calling this advertising, How else could a certificate of value be given?—Ed.]

REMOVING FOREIGN BODIES FROM THE EYE.

Sir,

In reading your report of Prof. Pritchard's address on "Some Pathological Conditions Affecting the Appendages of the Eye," delivered before the Eastern Counties Veterinary Medical Society, and the discussion follow-

ing, I was surprised to see that none of the members appeared to be familiar with a very simple method of removing a foreign body from the eye of a horse or ox, more especially oat or wheat "flights" as being the most common foreign body. It is one that my father who practised here before me learnt from an ordinary cowman. It is to smear some glutinous material on the end of the finger and awaiting a favourable opportunity to quickly and quietly pass it over the part where the substance to be removed is situated, and nine times out of ten it will stick to the finger. I very rarely have to make two attempts. The material I always use can be obtained at most places and is just the thick gummy grease from the inside of the hub of the wheel of a tumbril cart.

I hope this little tip will be found useful to those practitioners who have been in the habit of using forceps or other tedious methods.—Yours truly,

R. W. KNOWLES, M.R.C.V.S.

Wisbech, Nov. 22.

COMMUNICATIONS, BOOKS, AND PAPERS RECEIVED:—Major Nunn; Messrs. R. J. Dawson, D. Young, J. P. Isherwood, J. H. Wilson; R. W. Knowles.

General Index to Miss Ormerod's Report on Injurious Insects 1877-1898, Sheldrake's Aldershot Military Gazette, The Yorkshire Post.

Veterinary Societies—Addresses.

Alterations for this list must be duly notified by the Secretaries

BOMBAY V.M.A.
Pres Major Jas. Mills, M.R.C.V.S.
Vice-Pres: Vety.-Lieut. F. S. H. Baldrey, M.R.C.V.S. A.V.D.
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Meetings, First Thursday in each month, except August and September, 10 Red Lion Square. Holborn, at 7 p.m.

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Second Tuesday in August, November

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Meetings First Thursday in March, and Autumn.

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754 Garscube Road, Glasgow

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